

JOURNAL OF CELLULAR PHYSIOLOGY

COPYRIGHT © THE WISTAR INSTITUTE PRESS 1979

VITTORIO DEFENDI, *Managing Editor*

New York University Medical Center
Department of Pathology
550 First Avenue
New York, New York 10016

EDITORS

RENATO BASERGA
Temple University

P. I. MARCUS
University of Connecticut

E. A. MCCULLOCH
University of Toronto

P. SIEKEVITZ
The Rockefeller University

PAUL M. KRAEMER
University of California

ASSOCIATE EDITORS

JOHN W. ADAMSON
Veterans Administration Hospital
Seattle

I. LIEBERMAN
University of Pittsburgh

P. G. W. PLAGEMANN
University of Minnesota

CLAUDIO BASILICO
New York University

D. MARSLAND (*Emeritus*)
3523 Loquat Avenue
Miami, Florida 33133

RUSSELL ROSS
University of Washington
Seattle

LAWRENCE A. CHASIN
Columbia University

GEORGE M. MARTIN
University of Washington
Seattle

ASER ROTHSTEIN
The Hospital for Sick Children
Research Institute
Toronto

DENNIS D. CUNNINGHAM
University of California, Irvine

D. MAZIA
University of California

GIOVANNI ROVERA
The Wistar Institute

KURT HIRSCHHORN
Mount Sinai School of Medicine

M. L. MENDELSON
Lawrence Livermore Laboratory

CLIFFORD STANNERS
The Ontario Cancer Institute

RU CHIH C. HUANG
The Johns Hopkins University

DONALD METCALF
Walter and Eliza Hall Institute
Australia

L. WEISS
Roswell Park Memorial Institute

HERMAN M. KALCKAR
Harvard Medical School

KENNETH M. YAMADA
National Cancer Institute

VOLUME 100

JULY, AUGUST, SEPTEMBER 1979

PUBLISHED BY

THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY
PHILADELPHIA, PA.

COPYRIGHT © 1979 BY
THE WISTAR INSTITUTE PRESS
All rights reserved

Contents

No. 1 JULY 1979

SUZANNE M. WATT, ANTONY W. BURGESS AND DONALD METCALF. Isolation and Surface Labeling of Murine Polymorphonuclear Neutrophils.....	1
R. J. GILLIES AND D. W. DEAMER. Intracellular pH Changes during the Cell Cycle in <i>Tetrahymena</i>	23
K. STEARNS AND P. F. GOETINCK. Stimulation of Chondroitin Sulfate Synthesis by β -D-xyloside in Chondrocytes of the Proteoglycan Deficient Mutant Nanomelia	33
M. A. CIFONE, R. O. HYNES AND R. M. BAKER. Characteristics of Concanavalin A-resistant Chinese Hamster Ovary Cells and Certain Revertants	39
ZVI BAR-SHAVIT, YITZHAK STABINSKY, MATI FRIDKIN AND RACHEL GOLDMAN. Tuftsin-macrophage Interaction: Specific Binding and Augmentation of Phagocytosis	55
R. P. MILLER, M. HUSAIN AND S. LOHIN. Long Acting cAMP Analogues Enhance Sulfate Incorporation into Matrix Proteoglycans and Suppress Cell Division of Fetal Rat Chondrocytes in Monolayer Culture	63
SUZANNE HASTHORPE AND SIMON BOL. Erythropoietin Responses and Physical Characterization of Erythroid Progenitor Cells in Rauscher Virus Infected BALB/c Mice	77
B. R. MCAUSLAN, W. REILLY AND G. N. HANNAN. Stimulation of Endothelial Cell Proliferation by Precursors of Thymidylate	87
A. LAGE-DAVILA, B. KRUST, F. HOFMANN-CLERC, G. TORPIER AND L. MONTAGNIER. Bromodeoxyuridine-induced Reversion of Transformed Characteristics in BHK21 Cells: Changes at the Plasma Membrane Level	95
GEORGE B. SEGEL, GEORGE KOVACH AND MARSHALL A. LICHTMAN. Sodium-Potassium Adenosine Triphosphatase Activity of Human Lymphocyte Membrane Vesicles: Kinetic Parameters, Substrate Specificity, and Effects of Phytohemagglutinin	109
LAURENCE A. BOXER, BURTON VANDERBILT, STEPHEN BONSB, RALPH JERSILD, HSIN-HSIN YANG AND ROBERT I. BAEHNER. Enhancement of Chemotactic Response and Microtubule Assembly in Human Leukocytes by Ascorbic Acid	119
C. P. STANNERS, M. E. ADAMS, J. L. HARKINS AND J. W. POLLARD. Transformed Cells Have Lost Control of Ribosome Number through Their Growth Cycle	127
KENNETH D. BROWN AND ROBERT W. HOLLEY. Epidermal Growth Factor and the Control of Proliferation of Balb 3T3 and Benz[a]pyrene-transformed Balb 3T3 Cells	139
S. SHI-HUA CHEN. Enhanced Sterol Synthesis in Concanavalin A-Stimulated Lymphocytes: Correlation with Phospholipid Synthesis and DNA Synthesis	147
PHILIP E. BRANTON AND JOHANNE LANDRY-MAGNAN. Plasma Membrane Phosphoproteins in Normal and Rous Sarcoma Virus Transformed Chick Embryo Fibroblasts: Characterization by In Vitro Phosphorylation.....	159
L. LACKO, B. WITKE AND I. LACKO. The Effect of Homologous Localanesthetics of the 4-Alkoxy- and 4-Alkylamino-benzoic acid-diethylamino-ethylester-hydrochloride-series on the Glucose Transport in Human Erythrocytes	169
MICHAEL ZAVORTINK, THOMAS THACHER AND MARTIN RECHSTEINER. Degradation of Proteins Microinjected into Cultured Mammalian Cells	175

CHRISTOPHER M. AMY AND LIONEL I. REBHUN. Involvement of Glutathione in the Inhibition of Sea Urchin Egg Mitosis by Phenyl Glyoxal	187
---	-----

No. 2 AUGUST 1979

DAVID J. WELLS, LINDA S. STODDARD, MICHAEL J. GETZ AND HAROLD L. MOSES. α -Amanitin and 5-Fluorouridine Inhibition of Serum-stimulated DNA Synthesis in Quiescent AKR-2B Mouse Embryo Cells	199
HISASHI SANUI AND A. HARRY RUBIN. Measurement of Total, Intracellular and Surface Bound Cations in Animal Cells Grown in Culture	215
KENNETH D. BROWN, YUN-CHI YEH AND ROBERT W. HOLLEY. Binding, Internalization, and Degradation of Epidermal Growth Factor by Balb 3T3 and BP3T3 Cells: Relationship to Cell Density and the Stimulation of Cell Proliferation	227
P. H. NACCACHE, H. J. SHOWELL, E. L. BECKER AND R. I. SHA'AFI. The Chemotactic Factor Induced Movement of Calcium and Sodium across Rabbit Neutrophils Membranes: Effect of Desensitization to Cytochalasin B	239
ROBERT J. FALLON AND RODY P. COX. Cell Cycle Analysis of Sodium Butyrate and Hydroxyurea, Inducers of Ectopic Hormone Production in HeLa Cells	251
YASUHIRO S. OKADA AND AKIRA HAKURA. Cell Cycle Dependence of Transformation Expression in Mouse Cells Transformed by a Thermosensitive Mutant (Ts-121) of Polyoma Virus	263
THOMAS JENNINGS, R. DAVID JONES AND ALLAN LIPTON. A Growth Factor from Spinal Cord	273
JAMES E. STANCHFIELD AND JAMES D. YAGER, JR. Insulin Effects on Protein Synthesis and Secretion in Primary Cultures of Amphibian Hepatocytes	279
J. D. VALENTICH, R. TCHAO AND J. LEIGHTON. Hemicycst Formation Stimulated by Cyclic AMP in Dog Kidney Cell Line MDCK	291
SANDRA GOLES DYKES, IVAN L. CAMERON AND NANCY K. R. SMITH. Electron Probe Microanalysis of Elemental Composition of Mouse Cardiac Myocytes during Post-Natal Maturation	305
DANIEL J. KNAUER AND GARY L. SMITH. Regulation of the Proliferative Response in Rous Sarcoma Virus Transformed Chicken Embryo Fibroblasts by Serum and Multiplication-stimulating Activity (MSA)	311
NESSLY CRAIG. Effect of Temperature on Protein and Immunoglobulin Synthesis and Secretion in Two Mouse Myeloma Cell Lines	323
PAUL B. FISHER, VERNON BRYSON AND CARL P. SCHAFFNER. Polyene Macrolide Antibiotic Cytotoxicity and Membrane Permeability Alterations. II. Phenotypic Expression in Intraspecific and Interspecific Somatic Cell Hybrids	335
GARY F. MERRILL, NORMAN C. DULAK AND JAMES R. FLORINI. MSA Stimulation of AIB Transport Is Independent of K ⁺ Accumulation in Myoblasts	343
RYUSHI T. NOZAWA AND TAKESHI YOKOTA. Inhibition by Glucocorticoids and Cholera toxin of the Conditional Growth of Poorly Adherent Mononuclear Phagocytes of Newborn Hamster Liver and Lung (Hormonal Control of Macrophage Growth)	351
GIRIJA BHARGAVA, LEONARD RIFAS AND MAYNARD H. MAKMAN. Presence of Epidermal Growth Factor Receptors and Influence of Epidermal Growth Factor on Proliferation and Aging in Cultured Smooth Muscle Cells	365
DAVID R. HARDER AND PATRICIA B. COULSON. Estrogen Receptors and Effects of Estrogen on Membrane Electrical Properties of Coronary Vascular Smooth Muscle	375
<i>Brief Communications</i>	
SHINICHI AIZAWA AND YUJI MITSUI. A New Cell Surface Marker of Aging in Human Diploid Fibroblasts	383
Erratum (Mayorek et al., (1979) 98: 587-596)	389

No. 3 SEPTEMBER 1979

LAWRENCE E. WIDMAN, JONATHAN J. GOLDEN AND LAWRENCE A. CHASIN. Im- mortalization of Normal Liver Functions in Cell Culture: Rat Hepato- cyte-Hepatoma Cell Hybrids Expressing Ornithine Carbamoyltransferase Activity	391
E. A. HERMAN, M. YAMAMOTO AND B. RAPOPORT. Effect of Serum on Prosta- glandin Production during the Co-culture of Human Thyroid Cells and Peripheral Blood Mononuclear Cells	401
MAREK K. ZDANOWSKI AND LEIF RASMUSSEN. Peptidase Activity in <i>Tetrahymena</i>	407
CHRISTOPHER N. FRANTZ, CHARLES D. STILES AND CHARLES D. SCHER. The Tumor Promoter 12-0-Tetradecanoyl-Phorbol-13-Acetate Enhances the Proliferative Response of Balb/c-3T3 Cells to Hormonal Growth Factors	413
ZBIGNIEW DARZYNKIEWICZ, DONALD P. EVENSON, LISA STAIANO-COICO, THOMAS K. SHARPLESS AND MYRON L. MELAMED. Correlation between Cell Cycle Duration and RNA Content	425
SUSUMU IKEGAMI, SHONAN AMEMIYA, MIEKO OGURO, HIROSHI NAGANO AND YOSHITAKE MANO. Inhibition by Aphidicolin of Cell Cycle Progression and DNA Replication in Sea Urchin Embryos	439
JAMES A. WESTON, KENNETH M. YAMADA AND KAREN L. HENDRICKS. Char- acterization of Factor(s) in Culture Supernatants Affecting Cell Social Behavior	445
IIH-NAN (GEORGE) CHOU, ROBERT COX AND PAUL H. BLACK. Studies on the Mechanism of Ca^{2+} Stimulation of Plasminogen Activator Synthesis/Re- lease by Swiss 3T3 Cells	457
DIXIE MAGER AND ALAN BERNSTEIN. The Role of Heme in the Regulation of the Late Program of Friend Cell Erythroid Differentiation	467
I. VLODAVSKY, P. E. FIELDING, L. K. JOHNSON AND D. GOSPODAROWICZ. Inhi- bition of Low Density Lipoprotein Uptake in Confluent Endothelial Cell Monolayers Correlates with a Restricted Surface Receptor Redistribution	481
W. J. PLEDGER, W. J. THOMPSON, P. M. EPSTEIN AND S. J. STRADA. Regulation of Cyclic Nucleotide Phosphodiesterase Forms by Serum and Insulin in Cultured Fibroblasts	497
WALKER WHARTON AND BARRY GOZ. The Inhibition by Xanthine Phosphodies- terase Inhibitors of the Induction of Alkaline Phosphatase Activity in HeLa Cells: Relationship of Enzyme Activity to Cyclic AMP Concen- trations	509
JOHN F. LECHNER AND M. EDWARD KAIGHN. Application of the Principles of Enzyme Kinetics to Clonal Growth Rate Assays: An Approach for Delin- eating Interactions among Growth Promoting Agents	519
RICHARD K. MEISTER, SONIA E. HULMAN AND LEE F. JOHNSON. Rapid Changes in Poly (A)(+) mRNA Content in Growth Stimulated Fibroblasts follow- ing Perturbations in Protein Synthesis	531
JAN D. MARSHALL AND HANS-JÖRG HEINIGER. High Affinity Concanavalin A Binding to Sterol-depleted L Cells	539
R. B. ZEIDLER AND H. D. KIM. Effects of Low Electrolyte Media on Salt Loss and Hemolysis of Mammalian Red Blood Cells	551
AVRUM I. GOTTLIEB, M. H. HEGGENESS, J. F. ASH AND S. J. SINGER. Mechanochemical Proteins, Cell Motility and Cell-Cell Contracts: The Localization of Mechanochemical Proteins Inside Cultured Cells at the Edge of an In Vitro "Wound"	563

ROBERT A. STEINBERG, M. GWEN STEINBERG AND THEODOOR VAN DAALEN WET- TERS. A Variant of S49 Mouse Lymphoma Cells with Enhanced Secretion of Cyclic AMP	579
MERWIN MOSKOWITZ AND DAVID K. S. CHENG. Growth and G1 Arrest of Sar- coma Virus Transformed Cells in Serum Free Media	589
Index to Volume 100	603